



National Park Service
U.S. Department of the Interior

Vital Signs are a subset of physical, chemical, and biological elements and processes of park ecosystems selected to represent the overall health or condition of park resources.



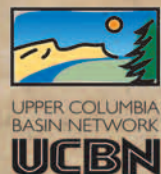
Upper Columbia Basin Network Inventory and Monitoring Program

“Taking the Pulse of the National Parks”

For more information visit our website at:
<http://science.nature.nps.gov/im/units/ucbn/>

OFFICE LOCATION

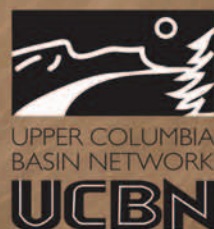
National Park Service
Upper Columbia Basin Network
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University of Idaho

UPPER COLUMBIA BASIN
NETWORK PARK UNITS

- Big Hole National Battlefield
- City of Rocks National Reserve
- Craters of the Moon National Monument and Preserve
- Hagerman Fossil Beds National Monument
- John Day Fossil Beds National Monument
- Lake Roosevelt National Recreation Area
- Minidoka Internment National Monument
- Nez Perce National Historical Park
- Whitman Mission National Historic Site



Upper Columbia Basin Network

Inventory & Monitoring Program

*Providing long-term monitoring
of natural resources*

NPS Inventory and Monitoring (I&M)

Managers need reliable, scientifically-valid data to maintain resources “unimpaired for future generations,” especially as conditions outside the parks rapidly change. To address information gaps and facilitate proactive resource management, the NPS has established a servicewide Inventory and Monitoring Program, composed of 32 “networks” of parks grouped by proximity and ecological similarity.

The national initiative covers five key components:

- baseline inventories of biological and geophysical natural resources
- long-term ecological monitoring programs
- digital geographic information that documents distribution of natural resources
- integration of inventory and monitoring programs into park management decisions
- cooperation with neighboring agencies to manage resources on a larger scale

The Upper Columbia Basin Network (UCBN)

The nine parks in the UCBN are spread across four states and occupy portions of the Columbia Plateau and Snake River Plain geographic regions.



UCBN parks share many similar natural resource threats and issues. The most fundamental is the profound alteration and disturbance of their landscapes. Land use change, habitat alteration, and fragmentation are some of the most important sources of resource stress. Network parks are constantly beset by invasions of exotic plants, suffer from water and air quality problems on adjacent lands and experience visual and noise impacts adjacent to the units. These factors disrupt the cultural setting many of the parks seek to portray.

Many plants and animals that occur in UCBN parks are unique to the semi-arid habitats of the upper Columbia Basin. This list includes greater sage grouse, spotted bat, Columbia spotted frog, and hedgehog cactus. In addition, parks in the UCBN contain the only pinyon pine woodland in Idaho, substantial expanses of native sagebrush-steppe habitat and one of the last strongholds of the arctic grayling south of Canada.



Upper Columbia Basin Network Inventory & Monitoring Program

Focal Systems

The UCBN science advisory committee has identified five focal systems upon which the monitoring program is based. These systems are defined primarily by land cover and encompass the suite of significant ecological resources of concern, from which measurable information-rich vital signs have been chosen.



Sagebrush-steppe ecosystems, the most widely distributed ecosystem type within the network parks, is dominated by one or more of the big sagebrush species in association with perennial bunchgrasses and forbs.



Forest and woodland ecosystems that occur in the UCBN include mixed fir and pine forest, ponderosa pine forest, limber pine woodland, pinyon-juniper woodland, aspen groves, and riparian cottonwood stands.



Cultural landscapes contain both cultural and natural resources, are associated with a historic event, activity, or person, and represent a critical component of park mission and visitor experience.



Riparian ecosystems, although small in extent, are disproportionately important to both terrestrial and aquatic biological diversity and ecological processes in the UCBN, such as water retention and nutrient cycling.



Aquatic ecosystems, both lotic (running water) and lentic (lake and pond) aquatic habitats are represented and, like the riparian and wetland habitats they support, are inextricably linked to the overall structure and function of network ecosystems.

Inventories

Natural resource inventories are extensive, point-in-time surveys of the distribution and abundance of animals, plants, and the abiotic environment including water, soil, and air. Natural resource inventories form the basis for monitoring, which addresses changes in resources over time.

Inventories and additional monitoring projects supported by the UCBN include:

- natural resource condition assessments
- photomonitoring of stream restoration projects
- rare animal and plant inventories (e.g., American pika, Lemhi penstemon)
- vegetation mapping inventories

Monitoring

As part of the National Park Service's efforts to improve park management through greater reliance on scientific knowledge, a primary purpose of the monitoring program is to develop, organize, and make available natural resource monitoring data. Hundreds of observations about animal and plant communities and measurements of water quality parameters are collected each year by network I&M staff and cooperators. Data from field work is synthesized and reported annually to assist park managers in evaluating management actions, and to help park staff and visitors better understand the status of park resources.

The following natural resources have been selected for monitoring in the UCBN:

- | | |
|------------------------------|--|
| • aquatic macroinvertebrates | • pika |
| • aspen | • riparian vegetation |
| • bats | • sagebrush-steppe vegetation |
| • camas lily | • sage grouse |
| • invasive/exotic plants | • stream/river channel characteristics |
| • land cover and use | • water chemistry |
| • limber pine | |
| • osprey | |

Climate Change

Climate change may be the most far-reaching challenge facing our park natural resource managers. National park units can serve as the proverbial "canary in the coal mine", and we can monitor and document ecosystem change without many of the stressors that are found on other public lands. The UCBN is tracking changes in park natural resources that may be influenced or caused by climate change.

Partnerships and Citizen Scientists

The UCBN staff is committed to fostering new regional collaborations that will benefit natural resource management within network parks.

Outreach and education are integral to the UCBN's long-term monitoring program and communication strategy. To this end, volunteers have played, and will continue to play, a key role as citizen scientists in network inventory and monitoring activities.



State-of-the-Art Science

Today's state-of-the-art information technology (IT) has the ability to increase productivity of researchers and managers in the field.

Given the large expanse of area under management and relatively limited budgets, the UCBN is taking IT to the field in support of the natural resource I&M program. Well planned use of IT in the field allows staff to accomplish more tasks in less time, without the extra step of data entry from paper field forms. The UCBN uses global positioning systems (GPS), personal data assistants (handheld computers), Geographic Information Systems (GIS) technology, solar panels, and data loggers (for continuous water chemistry and bat acoustic data).

The UCBN I&M Program combines innovative sampling techniques, rigorous protocols, the most recent software, contemporary communication techniques, and quantifiable results into a cutting-edge effort that supports long-term monitoring.